

Notice of Allowability

Application No.

09/990,836

Examiner

TUAN A PHAM

Applicant(s)

BOTTRILL, JOHN

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/10/2004.
2. ☒ The allowed claim(s) is/are 1-7.
3. ☒ The drawings filed on 14 November 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

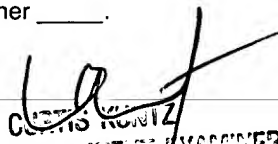
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


CURTIS MONTZ
SUPERVISORY PATENT EXAMINER
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DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Attorney of record Daniel Swayze on 02-2-2005.

3. The application has been amended as follows:

In claim 1, line 1, before "circuit", the follows have been inserted: -- ring generator circuitry adapted for telephone system, comprising: a --.

In claim 2, line 1, before "circuit", the follows have been inserted: -- ring generator circuitry adapted for telephone system, comprising: a --.

In claim 7, line 1, before "circuit", the follows have been inserted: -- ring generator circuitry adapted for telephone system, comprising: a --.

(End of Amendment)

REASONS FOR ALLOWANCE

4. Claims 1-7 are allowed over the prior art of record.
5. The following is an examiner's statement of reasons for allowance:

The applicant's Remarks filed on 12/10/2004 have been carefully reviewed with update search. Consequently, allowances of claims 1-7 are set forth in according to the applicant's remarks stated on pages 5-6.

Regarding claims 1 and 2, the prior art made of record fails to teach or suggest, the arrangement of a circuit for switching a relay when an active AC voltage on one of the contacts of the relay is approximately zero volts, the circuit comprising: a monitoring circuit that receives the active AC voltage and outputs a phase-shifted voltage that crosses zero volts at predetermined times before the active AC voltage traverses zero volts; a pulse generating circuit that initiates a pulse when the phase-shifted voltage enters a predefined voltage region and terminates the pulse when the phase-shifted voltage exits the predefined voltage region; a relay control circuit that changes state at a leading edge of the pulse following a change in an input control signal. Furthermore, the monitor circuit comprises a resistor divider formed of a first resistor and a second resistor connected in series connected between an input and ground with a capacitor across the first resistor and a diode in series with a third resistor across the second resistor; and wherein the diode conducts when the voltage at a junction of the first and second resistor is positive and the phase-shifted voltage is generated at the junction, in

combination with other limitations, as specified in the independent claims 1 and 2, and further limitations of their respectively dependent claims 3-6.

Regarding claim 7, the prior art made of record fails to teach or suggest, the arrangement of a circuit for providing a pulse a predetermined time before an AC input voltage traverses a zero voltage crossing, the circuit comprising: a first resistor and a second resistor connected at first ends in series at a junction, a second end of the second resistor forming an output point and a second end of the first resistor connected to an input; a capacitor connected in parallel across the first resistor, wherein the change in voltage across the second resistor precedes a change in voltage of the input; a diode having an anode connected to the junction point; a third resistor having a first end connected to a cathode of the diode and a second end connected to ground; a first Schottky diode forward connected between the output point and a ground; a second Schottky diode forward connected between the output point and a positive voltage; a fourth and fifth resistor connected in series between the positive voltage and ground, in parallel with the first and second Schottky diodes, a connection between the fourth and fifth resistors providing a reference voltage; a first and second differential amplifier configured to detect respectively when the voltage at the junction is less than the reference voltage and when the voltage at the output is greater than ground; and a diode network connecting the outputs of the differential amplifiers generating a positive pulse while the junction is between ground and the reference voltage.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (703) 305-4987. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (703) 305-4708 and

IF PAPER HAS BEEN MISSED FROM THIS OFFICIAL ACTION PACKAGE, PLEASE CALL Customer Service at (703) 306-0377 FOR THE SUBSTITUTIONS OR COPIES.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to: (703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist, tel. No. 703-305-4700).

Information regarding the status of an application may be obtained from the

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Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

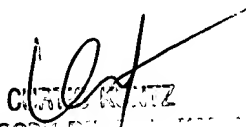
For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have question on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit 2643
February 25, 2005
Examiner

Tuan Pham


CYNTHIA R. KUTZ
SUPERVISOR OF
TECHNICAL STAFF